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1. Up-to-date information on crop statistics in Estonia is rather limited because of the following circumstances:

   a. Data on crop yields and acreages in particular state or collective farms as published in current Soviet newspapers are not representative and could be generalized only after careful analysis.

   b. The newer Soviet statistical data are not directly comparable with those of the independence years because all previous administrative units (counties, towns) have been abolished and replaced with new ones in accordance with the Soviet pattern. Furthermore, the Estonian state lines have been changed and parts of Estonian territory (nearly 10 per cent) combined with the adjoining Soviet administrative units.

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2. [redacted] based mostly on the situation in independent Estonia. However, it has to be kept in mind that considerable changes have occurred in the structure of the Estonian agriculture since the occupation of Estonia by the USSR began.

3. First, as a result of the Soviet and German occupations and war damages during World War II, buildings of many farms were destroyed, the number of livestock dropped drastically and many fields were left unplanted. These damages were not recovered by as late as 1951.

4. Second, the collectivization of individual farms after Soviet pattern was introduced and completed largely by 1950. In connection with this, a mass deportation was carried out in March 1949 in line with the notorious "liquidation of the kulaks" action. Approximately 10 per cent of the farm families were deported to Siberia and Artic regions of the USSR. In place of the 140 thousand individual farms in 1939 there were 936 large collective farms -- kolkhoz-units in 1952.

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5. The war damages and collectivization of agriculture were the primary reasons that from 1939 to 1951 the number of milk cows, pigs and sheep had dropped by 70 per cent, all cattle by 53 per cent and horses by 34 per cent. Likewise, it is estimated that the acreage planted to crops was about 25 per cent below that of 1939.

6. There is no recent data available as to the amounts of agricultural products exported from Estonia. Practically all exports go to USSR proper. Since Estonia has always had a surplus of animal products, it is clear that milk, butter and cheese is exported to the USSR. Certainly some potatoes go to Leningrad. Flax fiber and flax seed may be exported to the UK and other western European countries. Self sufficiency in food grains is being expected to be reached by 1955, the end of the current five-year plan.

CROPS

7. [redacted] 50X1

The major food crops produced for domestic consumption in Estonia are rye, wheat, barley, potatoes, some pulses and buckwheat. Of vegetables, cabbage, yellow turnips and carrots were most important.

Only very limited amounts of vegetable food products were exported before 1939: approximately 2 - 3 per cent of the total food grain crop in the good crop years. About the same percentage of potatoes were exported as seed potatoes to south European countries. The potato export potential was actually larger but the market situation and the protective measures imposed by neighboring countries in the interest of their own agriculture made it more profitable to feed the potatoes to pigs or to distill to alcohol. Before World War I considerable amounts of eating potatoes were sold on the Leningrad market.

8. [redacted] 50X1

The major non-food crops are oats, flax, root crops and grass. Probably the larger part of barley and potatoes were used as feeds.

Flax fiber was the most important non-food export crop. During the independence time nearly 2/3 of the total production was exported. Sporadically, some flax seed was exported. Also, in surplus years some apples were sold [redacted] occasionally some onions and chicory. 50X1

9. [redacted] 50X1

There are no "morale" crops of importance grown in Estonia. In war time scarcity, some tobacco was grown mainly for home use. But, since potatoes had been the raw material used for alcoholic beverages, this in a way could be considered as a "morale crop".

10. [redacted] 50X1

The economic stability of the country is based mainly on dairy feed crops--such as pasture, wild and tame hay, and to a lesser extent on oats. Second, rye, wheat and potatoes influence the food situation, and potato and barley crops, pig production. In some parts of Southern Estonia, flax was an important cash crop and furnished up to 15-20 per cent of farm cash receipts. As an average, before World War II, these items furnished the following percentages of gross farm receipts:

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Dairy products and cattle	51	per cent
Pigs and pork	16	" "
Food grains	10	" "
Potatoes	3	" "
Flax	4	" "

50X1

11. [redacted]

Besides the shifts in conjunction with war damages and collectivization as indicated above, there are no major shifts as to the crop acreages and the general structure of the agricultural production.

PLANT PESTS AND DISEASES

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12. [redacted]

The most dangerous plant pests and diseases are as follows:

Small grain -- diseases: snow mold in rye, covered and loose smuts, stem smut of rye, ergot;
insect pests: owl moth (night moth), frit fly, Hessian fly, wire worm.

Potatoes -- diseases: late blight, common scab, black scurf, blackleg, virus diseases (mosaic, necrosis, leaf roll disease, etc.);
insect pests: wire worm.

There was neither black wart disease nor Colorado potato beetles in Estonia in 1939.

Root crops: flea beetle, turnip leaf beetle, beet-leaf miner, carrot fly.
Clover : wilt of clover, anthracnose of clover, clover weevil
Flax : flax dodder, anthracnose of the root and stem, stem rust, owl moth.
Vegetables: cabbage fly, cabbage moth, cabbage white butterfly, finger and toe disease, carrot fly.
Fruit : apple scab, brown rot, codling moth, winter moth, gooseberry mildew.

13. [redacted]

50X1

The introduction of potato beetle, potato black wart disease, and more serious virus diseases of the potato were most feared in 1939. While the climatic conditions seem to control the more serious spread of black wart and virus diseases, the potato beetle may become a major pest.

14. [redacted]

50X1

In winter rye, snow mold and frit fly, damages have been locally in some years as high as over 50 per cent of the harvest. Snow mold damages are highest in years when the snow falls on unfrozen land or snowcover lies long in the spring. Frit fly seems to spread after droughty summers and it damages young rye plants in the fall and oats and barley plants in the spring.

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Potato late blight damages up to 25 - 50 per cent of potato harvest in humid and foggy seasons. As commonly known this disease attacks leaves as well as tubers and may cause considerable storage losses.

Root crop pests such as turnip leaf beetle and flea beetles may sometimes damage young plantings completely. After the poisonous dusts have been introduced, it is, however, not too difficult to control these pests.

Clover wilt is a very serious disease that in some years has locally damaged 50 - 75 per cent of the pure clover fields. Radical control is still unknown. The clover weevil may seriously damage clover seed harvests.

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15.

Snow mold, frit fly, potato leaf rot, clover wilt, and clover weevil show very marked fluctuations from one season to the next. They often cause severe local damage.

PLANT DISEASE CONTROL

Plant protection

50X1

16.

The public plant protection services were directed by the Bureau of Plant Protection and Seed Control of the Ministry of Agriculture, and Department of Applied Zoology and Plant Diseases of the Agricultural Experiment Station of Tartu University. These institutions are still working although they may possibly have been reorganized.

The Bureau also exercised the duties of a plant quarantine for imported plants, bulbs and seed. The inspectors inspected and certified commercial seeds with the growers, inspected the local seed cleaning centers and establishments. Most of the commercial seeds had to be treated with fungicides. The inspectors disseminated information on plant pests and diseases and on measures for their control. Tartu University carried out resident teaching and research on plant pests, diseases and plant protection in agriculture and forestry. In the summer season the University [Tartu] in cooperation with the Bureau of Plant Protection, maintained warning and information services. They published information on the occurrence of plant pests and disease and gave advice to the farmers on how to control these. The information was disseminated in daily radio broadcasts and newspapers. It tested spray materials, fungicides, pesticides, and spraying and dusting equipment, and published the results.

The local seed cleaning establishments had, or were acquiring, equipment for seed treatment with fungicides.

50X1

17.

The Agricultural Experiment Station of Tartu University had a disease and pest reporting service organized in connection with the above mentioned warning and information service. The Experiment Station had a number of correspondents in each county who reported periodically and at the occurrence of particular pests or diseases. Besides that they reported most characteristic phenological observations (budding and blooming of fruit trees, bushes, etc.) These data combined with current meteorological observations furnished the basis for forecasting night frost danger, plant diseases and pests.

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18. [redacted] 50X1

The present situation is unknown. It can be assumed that in the present rigidly planned economy the Bureau of Plant Protection may have some power to allocate fungicides or insecticides in the event of a plant disease or insect epidemic.

However, it has to be noted that the methods of control of the most serious pests and diseases, fruit fly, snow mold, clover wilt, - are still unknown. Most efficient have been cultural measures-- such as shifting the planting time, growing red clover in mixture with Alsike clover and grasses.

19. [redacted] 50X1

in Estonia in 1939-1941 showed that the Soviets were very backward as to modern insecticides and fungicides, and their use. Besides that the supplies were entirely inadequate. During the independence years, most of the seed disinfectants, fungicide and insecticide dusts, and spray raw materials were imported from Germany. These imports stopped almost immediately after the annexation of the Baltic states by the USSR. Local industries were not supplied raw materials.

20. [redacted] 50X1

The local manufacture of insecticides and fungicides started in early 1930. The most important products were oil emulsion and other sprays for fruit trees and bushes, glue for fruit tree, glue rings etc. There was no export business in these chemicals. Production figures are not available. In 1939 they covered the local demand.

21. [redacted] 50X1

The usual procedure in training plant pathologists and entomologists was that after graduation from the University / Tartu / they served as graduate assistants or full time assistants with the University / Tartu / pursuing at the same time graduate study in their special field. After having taken their master's degree (Maj. agr.) they were usually sent abroad for one to two years on state fellowships, Biologische Reichsanstalt in Berlin, Germany being the most usual goal.

Advisory personnel usually consisted of university graduates. They had a well rounded background in plant pathology, entomology and plant protection. Their in-service improvement was done in annual meetings with the Tartu University or with some other agricultural experiment station by the University and Bureau of Plant Protection personnel.

22. [redacted] 50X1

The most comparable to an extension service is part of the duties of the Bureau of Plant Protection personnel.

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Quarantine

23. 50X1

The Bureau of Plant Protection inspectors act as plant quarantine officers and they are supposed to inspect all imported plants, bulbs and seeds. However, from the USSR everything is imported without any inspection and the imports from other countries are practically none.

24.

50X1

Not exactly known -- but certainly against potato black wart disease, Colorado beetle and probably against severe potato virus diseases if detectable.

25.

50X1

Methods

26.

Not much has been done to use biological methods of controlling insect pests aside from favoring the nesting of some kinds of birds. 50X1

27.

The plant protection works were and presumably are relatively little mechanized. No airplanes were used. Horsedrawn or small motor sprays were more commonly used in spraying fruit trees and potatoes chiefly for the control of late blight. 50X1

PERSONNEL

28.

50X1

Mr Richard Toomre and Mr Boris Nurmiste are the most outstanding plant pathologists and Mr K Eenlaid, the entomologist in today's Estonia. 50X1

50X1

29.

50X1

More detailed data on the level of their accomplishments are unknown, particularly after the second Soviet occupation since 1944.

30. 50X1

Mr Toomre, Nurmiste, and Eenlaid are all in their early and middle forties. They are all graduates of the Tartu University. Mr Toomre spent three years during World War II in the Soviet army. He has made study trips to Leningrad and Moscow but not to Western Europe. Mr Nurmiste spent six months in 1943 in Berlin, Germany in the Biologische Reichesenstalt, working on potato virus diseases. Mr Eenlaid has not been abroad, but possibly may have visited the USSR after World War II. No one of them has ever been in the US.

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HERBICIDES

31. [redacted] 50X1

The use of herbicides for controlling weeds on farms was and is extremely limited, practically unimportant. The general recommendation is to control weeds by cultural practices and cultivation. Only two herbicides worthy of mentioning were used on farms, cyanamid of calcium and fine ground "Kainit" (raw potash) to control wild mustard, charlock and the like.

32. [redacted] 50X1

The above mentioned herbicides were used then only in cereal crops.

33. [redacted] 50X1

None in broad-leaf crops.

34. [redacted] 50X1

Only post-emergence herbicide applications.

35. [redacted] 50X1

Fertilizer spreaders. No aircraft.

36. [redacted]

37. 50X1

38.

39. 50X1

40.

41.

GENETICS AND PLANT BREEDING

42 [redacted] 50X1

In 1920 the Jogeva Plant Breeding Institute was established. Since then practically all major crops are receiving attention from plant breeders. The Institute has five divisions for different groups of plants as follows: 1. Cereals, 2. Potatoes, root crops and pulse crops, 3. Grasses and feed crops, 4. Flax and oil bearing crops. 5. Vegetable crops.

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In general the major goal is to breed high yielding plants adapted to local climatic and soil conditions. In winter rye and winter wheat, winter hardiness, resistance to lodging, diseases and insect pests is essential. In wheat both winter and spring, the baking qualities are stressed. A particular problem was to avoid germination in ears while drying in the field.

In spring cereals--wheat, oats, and barley--one of the major objectives of the plant breeders has been to develop plants with shorter growing season. The German, Danish and Swedish improved varieties, in common use with farmers in early 1920's generally had the disadvantage of longer growing season and did not ripen in cooler, rainier seasons. In oats, the resistance to crown rust was stressed. For special purposes, special goals were followed (for example low protein and high starch content in brewer's barley, etc.)

In potatoes, the dry matter yields per acre and resistance to common diseases were the objectives of the plant breeders.

In grasses and feed crops--high nutrient yields per acre, palatability, and resistance to diseases were the goals.

In flax, high fiber yields of high quality, and resistance to diseases that lowered the fiber quality.

50X1

43. [redacted]

50X1

As a result of the plant breeding work at Jogeva, by the late 1930's there were a number of improved crop varieties in commercial usage. Some were adopted into general use; others were still limited in acreage.

The Sangaste winter rye was grown probably on 65 - 75 per cent of total rye acreage. The newer varieties Jogeva I and II were promising but still limited in acreage.

Luunja and Kuusiku winter wheats combined, probably comprised about 50 per cent of the winter wheat acreage.

Improved barley varieties Jogeva 453, Putkaste and Jogeva 707 combined probably did not take in more than 1/4 of the acreage because they had been on the market for a relatively short time.

Improved oats varieties Agu, Koidu, Kehra Varane, Kehra Tangu, Kehra Saagirikas, Jogeva Roostekindlam and Jogeva Seisukindlam combined probably comprised about 50 per cent of the acreage grown.

Jogeva Red Clover 220 and 221 were grown on 50 per cent of the certified seed acreage.

Jogeva Timothy 54 was grown on 92 per cent of the certified seed acreage in 1940.

Jogeva Meadow Fescue 47 was grown on 61 per cent of the certified seed acreage in 1940.

Jogeva Orchard Grass 220 comprised 78 per cent of the certified seed acreage in 1940.

Jogeva Blue Grass 1 comprised 73 per cent of the certified seed acreage in 1940.

There were also other improved grass and feed crop varieties prevailing in certified seed acreage, but they are, in general, of less importance.

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Potatoes were a crop where the harvest of new, improved varieties has been very rich. This is partly due to differing uses of potatoes--early and late table potato, feeding, alcohol distilling, and seed export.

It is worth noting that Jogeva varieties Kalev, Kratt, and Nakk were in 1951 in the USSR potato variety list as top varieties. Between 1/5 and 1/4 of the potato acreage was probably planted to new Jogeva varieties. On the rest mostly Jogeva selections of the German, Dutch and English varieties prevailed.

The list of new Jogeva varieties in commercial use is as follows: Early variety - Jogeva Varane (Early), Medium late varieties - Mulk, Jogeva Sinine (Blue), Virulane, Kalev, Nakk, Late varieties - Paala, Kratt, Linda, Tartlane, Jogeva Kollane, Uku, Tonn, Lembitu, Leiger, Kungla.

Of root crops, the Jogeva Eesti Naeris of turnip variety was in commercial use. Probably 10-15 per cent of turnip acreage was planted to this variety.

Pulses, Jogeva Roheline dry pea variety and Jogeva Polduba--dry bean variety were put on the market in late 1930's.

The flax variety Jogeva Eliit did not have time to conquer the commercial market. Otherwise it was promising improved variety.

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Most of the production and dissemination of seeds of the improved crop varieties was done by the Estonian Seed Company. The company had five large farms for seed growing purposes. Besides that it bought certified seed grown by farmers and the state farms. All Jogeva improved breeds were given over for seed multiplication to the Estonian Seed Company. In general, the efforts to get seeds of improved varieties to the farmer were fairly successful in independent Estonia.

In the production and dissemination of seeds of improved crop varieties, the Estonian Plant Breeding Association, the Estonian Seed Company and the Bureau of Plant Protection and Seed Control cooperated closely. The production of the certified seeds was done under the supervision of the Estonian Plant Breeding Association while the inspectors of the Bureau of Plant Protection and seed control participated in the field inspections. Each spring the Plant Breeding Association organized a so-called travelling seed exhibit in railway carriages that stopped at the railway stations in most important farming centers. The exhibit had a selling department attached that made direct sales of certified seeds and/or accepted orders from the farmers.

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45.

50X1

Basic research in plant genetics was of no practical importance.

46.

50X1

There is evidence that Michurinism and Lyssenkoism are hailed as the official party line even in Estonia. But while the present plant breeders have a western educational background, it can be assumed that they accept publicly the official party line but in their actual plant breeding work will follow the western recognized plant breeding methods.

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47. [redacted] 50X1

The major efforts in breeding for specific disease or pest resistance are made with potatoes (resistance to late blight, blackleg, black wart disease, virus diseases, potato Colorado beetle); with flax (resistance to stem rust and anthracnose) with cereals (resistance to leaf and crown rust, etc) with grasses and legumes (resistance to mildew); and with clover (resistance to clover wilt, anthracnose). 50X1

48. [redacted] 50X1

The plant improvement programs in Estonia definitely made a very significant contribution to the agricultural economy of the country. First, the crop yields rose, second, the fluctuations of harvests from one season to another were diminished due to new crop varieties that are more resistant to common plant diseases and pests. Improvements in baking qualities of the wheat varieties and brewing qualities of the barley diminished the needs for imported wheat and brewery grain. The increase of starch content in potatoes increased the yields of nutrients and alcohol raw material per acre.

-end-

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